

Aviation News

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Helldiver in Action: In releasing first photographs of its latest warcraft, Navy discloses that Curtiss-Wright's new dive-bomber, which wreaked havoc on the enemy in its initial combat test in the Pacific, packs one big bomb or two smaller ones, completely housed in a bomb bay, instead of being carried externally. The result is better lines, improved speed, and greater striking power.

Peace to Find Rails in Strong Position

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on missions of Mercy

Spending in the front lines of battle—picking up the seriously wounded—viving them back to deliver basic hospital care in mobile medical care—that is the vital assignment of this ambulance plane. Howard-built for the United States Navy and appropriately named the Howard Nightingale. All of Howard's vastly expanded facilities and energies now are assigned to wartime production. Ambulance planes (GHB-2) and advanced trainer planes (NHB-1) for the United States Navy. Primary trainer planes (PT-23) for the United States Army. With the advent of peace, these same facilities and energies will go into immediate action, in the service of commercial and industrial America.

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THE AVIATION NEWS

Washington Observer

TO HELL WITH HISTORY: WHAT'S THE PROBLEM?—This classic remark is an index to Air Chief Marshal Sir Arthur Tedder, named as deputy to General Eisenhower, supreme commander of the European invasion forces. His appointment is recognition of the importance of an air leader in the planning and execution of this greatest of military operations. Lieutenant General Carl Spaatz, who will command the entire American strategic bombing force operating against the Nazis, will get full play for his talents and, with Spaatz supplementing the talents of Eisenhower and Tedder, it is clear that a great share of the grand assault has been assigned to the Allied air forces and that coordination of land and air troops is to be more tightly knit than ever.

AIRMAN'S AIRMAN—Tedder is an aviator's aviator and orthodoxy and tradition in the military service have no place in his make-up. In this he has a world-wide partner in Curtis which perennial aviation history is known to all American aviation enthusiasts. This company helped turn the Nazis out of Africa. Spaatz is understood, will direct all operations against Nazi industry and transport by American bombardment planes from any place in Europe and Africa except Russia. It appears that the air strength of the invasion forces is in good hands.

* * *

BACKFLIP—Some observers and commentators who suddenly discovered air power about two years ago and went overboard are now saying that the last soldier and the battleship held the key to victory. No sound airman will depreciate one iota the immortal achievements of either of these arms. At the same time, it is difficult to see how anyone can deprecate the deeds of the AAF and naval aviation. The chief of Army Ordnance has said that Allied bombing at German industrial centers have affected only the quantity but that the quality of Nazi weapons and little doubt that the dividends from Allied air power are beginning to tell up in decreased production and weakened German morale on the European front; and in dog aerial attacks which bark their former punch in the Pacific. The results outweigh the losses. There is glory enough for all and this is no time to minimize the importance of any member of the armed forces team.

* * *

THE HELLDIVER'S NAME—Credit for the new Helldiver, the Navy's new devastating dive-bombing plane, is given by its builder, Curtiss.

Wright, is Charles Mathews, senior patent engineer for the company's Buffalo plant, who had been project engineer on the Curtiss XPBC-2. When the search for a name began, Mathews recalled that the Dubosk, a small bird, was also known in some parts of the country as the Helldiver. Research disclosed that the Dubosk, or Helldiver, was noted for its quackings in diving. Hence—Helldiver.

A PLANE BY ANY OTHER NAME . . . ETC.—In the copy of AVIATION NEWS' story on the Helldiver, reviewed by the Navy, the blundering of one word was noted. This was pretty mystifying since the word had been fairly widely publicized. The line in the story in question said an Army modification of the "Helldiver," known as the A-35 Sheik, is being produced at the Curtiss-Wright St. Louis plant. The word Sheik was striking. The fact is magnified here because the Curtiss Fly Leaf magazine, which has been set for some time, devoted its center-



page spread in the A-35, with a heading in large red letters "Curtiss Sheik." The Curtiss house organ goes on to explain that it is called the Sheik after a bird of that name which swoops down on its game with a snarl, gliding steeply and taking it by surprise. Illustration here, says the story, is the migrant or lagged Sheik, she called the Butcher Bird.

* * *

BLAYLOCK AND THE HELLDIVER—Whatever the name applied to this fine airplane, the principal name which should be mentioned in

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Make War Bonds the Christmas Order of the Day. Urge your workers to make their personal Christmas gifts in the form of War Bonds—and practice what you preach! Make them 100% War Bond Christmas—to insure future Yuletides of peace and prosperity.

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New's the time to turn as much as possible of these increased earnings into War Bonds—War Bonds for Christmas . . . and War Bonds the whole year 'round!

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Aviation News
McGraw-Hill Publishing Co., Inc.

JANUARY 3, 1944

Navy Releases Data on "Helldiver" As it Meets Enemy in Pacific

Streamlined Curtiss-Wright dive-bomber carries bomb load internally; speed, braking devices listed among improvements.

By ALEXANDER McSURELY

A jet-bellied new Navy dive-bomber, whose ugly and unsweatervable belly is its shape, has taken its place alongside its carrier-based foremen, the Corsair and Hellcat fighters, and the Avenger torpedo-bomber, to complete what is believed to be the hardest-hitting, fastest-flying Navy aerial offensive yet developed.

Assessment that the Curtiss Helldiver SBDC dive-bomber has gone into action in the Pacific is welcomed by Navy airmen, since it gives the fleet carriers a full complement of planes incorporating post-Pearl Harbor improvements, with the advantages of higher speeds and longer ranges gained from higher horsepower.

Designations — Neumann inspected the Helldiver recently at the home plant, the Curtiss-Wright factory at Columbus, and watched test flights of three of the top dive-bombers through a demonstration

of formation flying, including short-range takeoffs, and landings, in affirmation of the statement of Capt. W. C. Brand, pilot naval aircraft inspector, that the Helldiver could take off and land from any carrier, even the baby carriers, used against submarine.

Cheaper aerodynamically than earlier dive-bombers, the Helldiver packs in one big bomb or two smaller ones completely housed in a belly instead of carrying the deadly missile externally. It did not sacrifice durability. The new aircraft, which boasts streamlining of the plane, improved speed, and the ability to keep up with its swift escorts.

Braking Control — Eight flaps provide braking control in power dives while wing tip slats aerodynamically operate in connection with the landing gear, provide improved lateral control at low speeds as the plane comes in for a carrier landing.



"Helldiver" Designer: Raymond C. Maynard, project engineer of the Curtiss Helldiver and Chief Engineer of the Curtiss-Wright plant at Columbus, has been sterilized elsewhere with Helldiver dive-bombers, starting with the first FRC-4 production Helldiver and the first Navy plane built specifically for dive-bombing operations.

A folding tail-fin, behind the radioman-pilot's seat, collapses to afford him improved visibility and to operate his guns over a greater field of fire.

Since first contract award, May 15, 1942, for a single experimental plane, many changes have been introduced, including a larger tail fin, radioman-gunner self-sealing fuel tanks, protected fuel and oil lines. The first experimental plane was flown in November, 1943, but the following year, it was lost when it crashed in a terminal velocity dive, from which Test Pilot Series (Lieut.) Rule managed to escape by the parachute route. But tests were far enough along, and work had already started on production in the new Columbus plant and the first production Helldiver came off the line in June, 1943.

Design Changes — From July, 1942, until November, 1943, no fewer than 288 major changes were made, which resulted in every thousands



"Helldivers" in Action: Curtiss-Wright Helldiver, which has met its first combat test in the Pacific. It comprises the team composed of Hellcat, Corsair and Avenger torpedo-bomber.



BRITAIN'S NEW PLANE:

Unusual view of the Avro York, a transport version of the Lancaster bomber. It is a high wing, four-engine monoplane with a wingspan of 102 feet and an overall length of 78 feet. Four Rolls Royce Merlin liquid-cooled engines power the plane.

of minor changes. As a result of these alterations, many of them recommended as results of combat operational experience, the safety of the Heidicker has been extended far beyond the original plans of the plane's designer.

While approximately 70 percent of the Heidickers are being produced at the big Columbus plant, which was dedicated in December, 1941, just three days before Pearl Harbor, approximately 38 percent are being produced under license by the Canadian Car & Foundry Co., Ltd., of Montreal, and another 10 percent by a second Canadian firm, Fairchild of Canada, Ltd., Montreal, an Army modification of the Heidicker, known as the A-33, is being produced at the Curtiss-Wright St. Louis plant.

Designers—Credit for the Heidicker's design goes largely to Raymond C. Blaylock, now chief engineer of the Columbus plant, who was assigned as project engineer on the plane at its inception, and who has followed it through to its present combat debut. Blaylock, however, reports that approximately 300 engineers actually worked on the project over a two-year period, since the Columbus plant was opened.

The chief engineer, an engineering graduate from the University of

Scored at Rabaul

Battalions of extensive damage done to enemy shipping at Rabaul last Nov. 21, and one new battle honor was added to the ranks of the Navy's nine dive bombers, the Curtiss Heidicker.

The Heidicker squadron, from one division, was commanded by Lt. Cmdr. James E. Vose, Jr., U.S.N., and it sank a light cruiser and a destroyer, probably sank a heavy cruiser, severely damaged a heavy cruiser, sank a light cruiser and probably damaged a second destroyer.

As the Heidickers returned from the scene, they were attacked by enemy fighters, but made good their withdrawal without loss. Two of the planes later were lost near their carrier, due to exhaustion of fuel, but personnel was saved.

The official report describing the Heidicker's first combat action said: "The plane lived up to our expectations during combat." Rear Admiral DeWitt Clinton Ramsey, chief of the Bureau of Aeronautics, commented:

"The plane has demonstrated that it packs a terrific wallop for the Japs."

Michigan, has been with Curtiss-Wright since 1929, and designed a number of the earlier Curtiss dive-bombers, including the SBC series still in service in Navy training stations, and used by the British under the name of Cleasfield. Blaylock spent many hours observing planes he had designed, under actual operational use as carriers, and, as a pilot himself, understands the flying viewpoints on plane design as well as the engineering theory.

Renegotiation of '42 Contracts Near End

With Dept. expect to complete job on 17,000 orders by Feb. 1.

The War Department will have completed renegotiation of substantially all 1942 war contracts subject to renegotiation by the end of January, Under-Secretary of War Patterson disclosed. As of Dec. 11, there had been 17,000 contracts assigned to the War Department for renegotiation.

At the same date, the War Department had completed renegotiations with 4,858 contractors, representing more than 85 percent of its total, and had started new negotiations in nearly all remaining cases. Basing-point agreements have been concluded with practically all the largest war contractors and, it is anticipated, cover about 80 percent of the dollar volume of 1942 war contracts subject to renegotiation. Cleasfield, requiring no revised or excess profits or price adjustments, have been granted in around 60 percent of the completed cases.

Work Progressing—Patterson said that, while renegotiations were slow at getting under way because of the necessity for assembling concerned contractors and for formulating policies, principles and procedure, the work in recent months has been progressing at a satisfactory rate.

"In the case of most contractors making adjustments as the result of renegotiation," Patterson said, "excessive profits realized or likely to be realized by the contractor, nor the contracting officer, was able to estimate accurately in advance the cost of new products as well as of standard products required in unprecedented volumes.

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"The plane has demonstrated that it packs a terrific wallop for the Japs."

increases and work stoppages.

"Furthermore, the departmental contracting officers dealing only with the prime contractors usually have no control over prices charged by subcontractors. With respect to

standard commercial articles, contractors are in many cases exempted from maximizing their normal, present prices, which often results in the realization of excessive profits or grossly expanded volumes.

total of completed major 100-aircraft projects to 38. It is expected that 21 additional planes, new building, will be completed the early part of this year.

NLRB—**Steelers**—National Labor Relations Board said that an election is held within 30 days of Dec. 16, so that sheet metal maintenance workers in Dept. 705 of Douglas Aircraft's plant in Oklahoma City may vote for an optional representation by Sheet Metal Workers International Assn.—APL.

Machine Tool Shipments in November totaled \$12,243,000, a decline of about 8% from the October total of \$17,312,000, according to the WPB Trade Division.

War Manpower Commission announced that members of any private group set up to local employment agencies to help find jobs for all unemployed discharged members of the armed forces—both men and women—will be helped to find jobs to their liking.

Children's Bureau—A lot of jobs considered too hazardous for 16- and 17-year-old workers have been sent to aircraft plants by the Children's Bureau, U. S. Dept. of Labor. Aircraft plants in general were congratulated by Katherine F. Lenroot, chief of the Bureau, for their leadership in seeking safe employment for these teenagers, and also in working out part-time work and school programs.

The Bureau's recommendations

FEDERAL DIGEST

Increasing Surplus of War Metals Presents Problem for A. H. Bunker

New WPB vice chairman to assume direction of principal metal and mineral bureaus; summary of activities in U. S. agencies

New and important problems are arising from the growing surplus in some metal stocks and the market value of these stocks with contract rights, said President A. H. Bunker, new vice chairman for Metals and Minerals of the War Production Board. Creation of this position by WPB Chairman Donald M. Nelson completes the reorganization of the former Office of Quartermaster vice chairman.

Bunker will assume the direction of the Steel, Copper, Aluminum and Magnesium Bureaus, the Minerals Bureau, and the Minerals Resources Coordinating Division and associated committees. He has been director of the Aluminum and Magnesium Divisions of WPB. Before becoming associated with war production, he was executive vice-president of Lehman Corp.

Priority Regulation No 13, which has been revised, does not affect aircraft inventory transfers or special sales in the petroleum industry, WPB announced. This regulation, governing special sales of oil and excess materials, was revised in order that all regulations issued prior to Dec. 25 shall have no effect on redistribution of such materials. Outside the exceptions stated above, there is no need to refer to any order or regulation other than Priority Regulation No 13, to find the rules governing a special sale of oil or excess materials. Aircraft inventory transfers are controlled by Directive No. 300, and special sales in the petroleum industry by Order P-54.

Aeroquip Corp., which manufactures self-sealing cockpit, base lines and fittings for aircraft engines at a plant in Jackson, Mich., has executed a contract with Defense Plant Corp. amounting to \$100,000. This will provide equipment and machinery Aeroquip Corp. will operate these facilities, title remaining with DPC.

GPA announces that premium



REVEALS AIR EXPRESS RECORDS:

Transportation of 32,000,000 pounds of air express by the nation's airways during the first eight months of 1942 was reported by George Locking (right), air division manager for Railway Express Agency in eleven western states, at an air traffic conference for Western Air Lines executives in Los Angeles. Total air express volume for 1942, by itself, was 22,800,000 pounds. Locking and the nation's air carriers received a return of \$7,260,000 from a gross revenue of \$9,800,000 created by air express shipments in 1942. With him is Ray Gross, Western's air cargo manager.

ORDERS... without interference!

Orders coming through! Clearly. Directly. Thanks to the magic of modern aircraft radio reception, the vital lines of communication are maintained without interference... maintained between flight commanders, plane crews, and ground bases.

- How has the chief source of such interference—high tension currents in ignition systems—been eliminated? The answer is simple. By shifting the ignition center with **TITEFLEX HIGH FREQUENCY IGNITION SYSTEMS**.
- The Titeflex ignition business has proved the efficiency and dependability of Titeflex metal tubing by actual performance. Today

it is standard equipment on the majority of Uncle Sam's war birds.

- But, Titeflex will not be content with this leadership. Our research staff is constantly working to improve Titeflex products. Titeflex will be ready to meet the demand for flexible tubing of even wider application in the power planes of tomorrow. You are invited to consult our engineering staff on any problems you may now have or anticipate in power planning.

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were prepared at the request of an airplane manufacturer and were worked out with a technical advisory committee composed of representatives from aircraft manufacturers and the unions. Refined "Advisory Standards of the Aircraft Industry," the document is obtainable from the Children's Bureau in Washington.

• Moreover—an unpaid pool of 21,000,000 part-time workers is available to alleviate manpower shortages, according to War Manpower Commissioner Paul V. McNutt. These groups making up this potential total are: 1) 4,800,000 students over 16 years of age, many of whom are able to carry a part-time job in addition to their school work; 2) More than 3,000,000 non-working women between the ages of 20 and 25 years, who are without children; 3) Almost 16,000,000 workers in trade, service and government, some of whom are able to work a few additional hours a day on a second job.

Philadelphia Airport Shut as War Measure

CAB issues order suspending service of five airlines

By BARBARA FREDERICK

The City of Philadelphia, third largest in the country, has found itself suddenly cut off from transportation by air. An order issued by the Civil Aeronautics Board authorized the temporary suspension of service to that city by American Airlines, Eastern Air Lines, Transcontinental & Western Air, United Air Lines and All American Aviation.

Parked and enraged citizens of Philadelphia, prostrated and sad-eyed who. Unfortunately, military necessity would not permit the discontinuation of the means for suspension of service, other than to indicate that it was for reasons of safety.

• No Proof. By Airlines—Civil Aeronautics Administration authorities were prompt to point out that this "safety" factor had nothing to do with the \$10,000,000 Municipal Airport, itself.

Contrary to reports in some Philadelphia newspapers, the airlines themselves did not protest the suspension order. They had, in fact, initiated the Board two days earlier of their intention to discontinue service to Philadelphia on this date.

• New Field Proposed.—Resumption of commercial air service to the city could not be foreseen earlier than from four to six months hence, the



AMERICAN AIRLINES' SURVEY CREW HONORED:

An American Airlines press, which took part in an initial survey flight from New England to North Africa, has received the Air Medal in what amounts to the first instance of the honor going to the entire crew of a commercial airline. Left to right are Maj. Gen. E. L. George, commanding general of the Air Transport Command, who made the presentation; John F. Gaudion, crew captain and pilot; M. G. Board, flight engineer; G. W. Smith, radio officer; and J. E. Bress, navigator and second officer. James S. Harg, fifth member of the crew, was on duty in South America when the medal was presented.

estimated time necessary to complete the Northeast Philadelphia Airport at Tatemdale, now under construction. The field is said to have been leveled off and three runways partly constructed.

It is reported that American and Eastern will use Belmont as an alternative to TWA, will use Reading and United; Allentown-Lansdale service between those towns and downtown Philadelphia probably will be suspended.

• Canfield Airport Out—Canfield Airport, which has been suggested by some as a possible substitute, was

closed as unsafe for commercial operation some time ago by the CAB, although the Navy is using it as a Primary Training Base. NAVFLATS planes that have been using the Philadelphia airport plan to use the one at Willow Grove, Pa., ATC has not yet announced its plans.

Prior to suspension of service, 22 flights daily were scheduled at the Municipal Airport, serving about 100 passengers a day, about half of whom were tourists passengers. According to Edward M. Shafter, airport manager, a skeleton staff will be maintained at the airport.



TCA HOLDS ANNUAL TRAFFIC CONFERENCE

District and city traffic managers of Trans-Canada Air Lines met in Winnipeg for their annual traffic conference. The group included (from left, top to right), S. L. Bowler, Winslow J. T. Moon, Colgate, H. R. Campbell, Donnell H. Deneen, Toronto; W. C. Dill, Montreal; W. F. McRae, Toronto; W. E. C. Cawood, Moncton; J. L. Lefebvre, Winona, Quebec; (back row, left to right), D. S. McLeod, Edmonton; J. J. Pollock, Vancouver; R. C. Bruce Hogg, Winnipeg; V. N. Fulcher, Winnipeg; S. S. Rose, Halifax; N. E. M. Hartling, Winnipeg; and Harry McMillan, New York.

NAM Urges Equal Access to All In Use of International Bases

Post-war program on foreign trade outlined by manufacturers group in 95-page report on domestic, foreign issues.

National Association of Manufacturers has joined the ranks of advocates of equal access by all nations to airports used in international traffic. The Association's stand was outlined in a 95-page report on domestic and international aviation issues.

Drafted by a post-war committee and approved by the Association's board, the document favored "competition in post-war air transport, under proper safety and traffic regulations, and certification of public necessity and convenience."

P. War Treatment — The report stressed that equal access to airports in international traffic and equal treatment for shipping in international commerce were important factors in post-war policy; if discrimination against American interests in foreign trade is to be prevented and economic rivalries are to be kept from developing the seeds of another world war.

Both subjects, the Association suggested, could easily be put into postwar cooperation through international bodies. For example, resolution of the International Labor Office and the International Red Cross, the report said, involve no surrender of national sovereignty because they are based on voluntary agreements from which withdrawal may be made.

The report said all nations should be allowed to join in deliberations on international air and sea shipping, with nonparticipating nations barred from the rights of the participants.

P. Post-war Agreement — As an insurance of the "freedom of the air" principle, the NAM suggested that any system of progressive cancellation of lend-lease balances and that country be constituted on reparation basis. That step was made, but the "freedom of the air" principle, however, would not affect a nation's right to limit domestic transportation to planes and ships of its own nationality.

In line with its traditional views, the Association favored competition in post-war air transport in preference to a single American air line in the international field. Subsidies in international transport or export trade were opposed, unless necessary to national defense.

Lea Bill

Last date on which proponents of the Lea Bill (HR 3868) to renew the Civil Aeronautics Act could file to read a vote in the House of Representatives is sometime between Jan. 15 and Feb. 1.

Representative Lea is reported to have argued that the House Rules Committee, in which the bill rested when Congress adjourned over the holidays, brought it to the floor by the earlier date.

WTS Chief to Speak

H. McLean Stewart, executive director of training for the War Training Service, will address the annual meeting of the Association of American Colleges in Cincinnati, which will be held Jan. 12-14. He will discuss aviation training in colleges and universities.

Wilson Sees Greater War Effort Ahead

A warning against any untimely optimism over an early opening up of general civilian production has been made by Charles E. Wilson, WPAF executive vice-chairman, who said a bigger job lies ahead for the War Production Board in 1944 "than even the miracle which was accomplished in 1943."

Wilson agreed with the forecast of General Eisenhower that the war with Germany would end in 1944, but emphasized that neither the War Production Board nor military leaders could afford coast on a quick collapse of Germany.

Non-P. Plan — He added that just as the war is entering a new phase, so is the work of WPAF, and stressed that, while there would be numerous cutbacks this year, in the overall picture, far every line of production that stems up, another will expand.

"There is no alternative," Wilson said. "We simply must meet the demands of the military—and they'll be much bigger than those

of 1943, just as the difficulties of the United Nations will be bigger."

P. Perspective — He outlined the perspective of the War Production Board like this: 1. Direct war needs—shooting staff—especial first. 2. Next most important is to provide for man-to-mechanical needs to maintain health, sanitation and transportation, enabling war workers to do their work at a peak of efficiency. 3. WPAF will strive to produce as many same-needed civilian items as can be made without interfering with war production.

Canada Route Filings Unfrozen

In a memorandum to all our partners, issued last week, the Civil Aeronautics Board waives certain applications for air service between the U. S. and Canada. It has decided to proceed with applications immediately of American, Colonial, Pennsylvania, Central and United.

Following a prehearing conference on Colonial Airline's application for a route from New York City to Massena, N. Y., at which public counsel and counsel for other airlines claimed that the proposed service was, in effect Canadian-II-B service, as Colonial also had an application on file for service between Massena and Ottawa, an opinion from the Board was issued.

Hearings Resumed — After a suspension of hearing on all applications shortly after Pearl Harbor, the CAB has gradually continuing certain items on the calendar. Last big step in this direction was the release last September of applications for the Caribbean, Central and South America and Mexico area, on which a prehearing conference was held in Washington over a month ago.

C. & S. Mail Rate Set

For the first time in its history, Civil Aeronautics Board has made a "show cause" order without going through the further detail of writing an opinion on a case.

Mail compensation rate for Chicago and Southern Airlines was set by the Board at \$1 mill per pound mile on an airport-to-airport basis.

The show cause order, issued last February, when most of the other air carriers received similar orders, was at first opposed by Chicago and Southern, and went through the usual procedure.

Objections Withdrawn — Recently,

the airline withdrew its objections to the mail rate decision, and as the result of the American News Publishers' Association's insistence because of a misconception of a CAB statement about advertising also was withdrawn; there were no further objections pending in the case. To expedite matters, the CAB made the show cause order final.

By this order, Chicago and Southern's mail pay is reduced by approximately \$65,000.

U. S. Air Imports

Air imports into the United States during 1943—"a very vital and important part of our requirements"—amounted to nearly six percent of the value of imported ship engines, according to Donald M. Nelson, War Production Board chairman.

The air movement was about 31 million pounds with a value of \$13,309,000, or 5.63 percent of the total value of ocean cargo. Value of the average air-shipped unit was \$2.15 a pound, or 11 times the 25 cents per pound for ship cargo. The total air shipments imported were 6.72 percent of the \$13,346,000 legitimate volume carried by water.

Value — Nelson said "it might be said that during 1943 a unit of one pound was 1,381 times as valuable as one pound, or 20 times as valuable, about 20 times as safe and saved more than six times as fast an cargo on ocean vessels."

He pointed out that for each long ton carried to the United States by sea, 1.47 pounds moved by air, a figure higher than estimates early in the year that air cargo would compare with ship cargo pound for pound.

Paper Work Eased For Private Flyers

Private flying outside vital defense areas have been relieved of rigorous paper work, the Civil Aeronautics Administration reports, as the result of Civil Aeronautics Board enactment of regulations amendments proposed by the CAB and approved by military officials.

No longer need the pilot as such a flight file information on the proposed flight and obtain clearance for it. The CAB says recording by air port authorities of takeoff and landing will be considered sufficient protection. All aircraft owners and pilots already have been investigated and certified for legality by the CAB.

Laister-Kauffmann And Bowles Merge

Aircraft Fibre acquires subsidiary company through exchange of stock.

Laister-Kauffmann Aircraft Corp., St. Louis, and Bowles Subsidiary, Los Angeles, have merged with an exchange of stock by which Laister-Kauffmann acquires ownership of 90 per cent of Bowles, one-, two-, eight- and 12-place gliders.

The Bowles company has not been in production for several years. It was founded in 1929 to take over the glider business of Henry Bowles, Bowles, who withdrew from the company more than a year ago, was chief engineer of General Airborne Transport Corp.

Stability on Board — The directorate of Bowles Subsidiary is a blue book of the West Coast aircraft industry. On the board are Donald W. Douglas, Roscoe Flett, Carl Squier, Tom Wolfe, Dodge Whitling, and Col. Edward S. Evans. Stakeholders include John R. Northrop, president of Northrop Aircraft Corp.; Robert Gross, president of TWA and Ronald Berlin, North American Aviation.

Laister-Kauffmann — The Corp.'s major current project is a 30-seat airplane called the "Candy". The company plans to have taken over the complete design in St. Louis of Waco CG-4A Gliders nearly completed in Los Angeles when the government canceled Textron Aircraft Corp.'s glider building contract.

Plane Engine Design Topic for SAE Meet

Design details of wartime and post-war aircraft engines will feature the discussions at the 1944 annual engineering-annual meeting of the Society of Automotive Engineers in Detroit, Jan. 30 to 14.

John A. C. Warner, SAE general

Sailplane Record

Soaring Society of America announces continuation of the American altitude record for sailplanes, not last July by Shirley Charles, Eastern Air Lines pilot. The record of 12,626 feet above point of release bettered by 2,000 feet the previous record held by Robert Stanley, Bell Aircraft Corp. pilot.

manager, said the SAE aircraft and aircraft-engine activities would sponsor seven of the program's 23 technical sessions on engineering phases of war production and use of aircraft, with preview of problems developing in the field of post-war civilian flying.

Program — Aircraft engine sessions are scheduled to consider synthetic rubber applications, furnacing methods, porting cylinder design, powerplant tuning and cooling. Subjects to come before the aircraft sessions include booster design details, pressurized design changes, trans-constant air cargo developments, mechanical characteristics of aircraft steels, and aircraft lighter metals.

Joint sessions will be held on structural flight research and experimental flight testing. A special session will be devoted to post-war glider flying and to privately owned planes.

Maj. Gen. G. M. Barnes, Army Ordnance Dept., will speak at the SAE war engineering dinner as Jan. 32. Other speakers will include SAE president W. B. Jones, of Standard Oil Corp., and SAE retiring president Mac Short, of Vega Aircraft, now a part of Lockheed. Past president A. T. Colwell, of Thompson Products, will be mastermaster.

NRLB Denies Raise To Brewster Workers

Plant guards awarded weekly bonus of 10 percent.

National War Labor Board has denied a just request by Brewster Aeronautical Corp. and United Automobile Workers, CIO, for a general wage increase of two cents an hour for employees at the company's Long Island City, N. Y., plant.

The company and union based their request for the increase for regular workers on an allegation of a hardship worked as a result of Executive Order 9363 which forbids payment of time and a half or double time for Saturday or Sunday work unless such work is on day or seventh day of continuous work week and also limits the number of holidays for which premium pay is granted to six.

In denying the request for the two cents increase, the NRLB, with labor members dissenting, reaffirmed a decision handed down last August. The Board approved a weekly bonus of 10 percent to the plant guards to compensate them for earnings lost as a result of the operation of Executive Order 9363 on overtime.

THE AIR WAR

COMMENTARY

Appointments in India-Burma Area Follow Precedent in Mediterranean

Additional units, such as Aviation Engineers and Photo Reconnaissance, expected to come into picture as operations are stepped up.

A few days ago, Admiral the Lord Louis Mountbatten, commander-in-chief of "combined operations" adverse to Japan, accepted another notch by receiving units of the RAF as India and the U.S. Army Ninth Air Force into a unified air force.

The newly created Eastern Air Command is headed by Air Chief Marshal Sir Richard Peirse, one of the RAF's leading exponents of strategic bombardment. During 1941, Sir Richard was chief at Bomber Command in England and during the first quarter of 1942 was transferred to India when the Japanese juggernaut was rapidly overrunning Malaya and Burma, and the threat to India appeared very real.

All Objectives in India—Another air officer who is an exponent for the strategic bombing policies of long-range bombardier, Maj. Gen. Lowry L. Branton, reached New Delhi at about the same time, with the same immediate and long-term objectives. The immediate objective—the air defense of India, necessitating a sudden shift from the perennially threatened northwest India with its oft-invaded Khyber Pass, to the southeastern section, with its almost complete absence of airfields. The long-term objective—to transfer India into a huge, powerful base for concentrated air bombardment of Japanese industries through forward bases in China.

The immediate threat was represented by Japan's swing to the South Pacific in an attempt to cut off Australia as the Gruen-Tokyo supply road. Nearly two years later the increased strength of the RAF and the long-term objective, with India and the U.S. Twelfth and Fourteenth Air Forces, looks on the horizon.

American Units—Deputy Commander of the EAC is Maj. Gen. George E. Stratemeyer, who was

named Equipment includes Liberators and Mustangs, Wellingtons and Mosquitos, and their fighter escort, with common use of fighter-bombers.

Eastern Air Force—Air Marshal Sir John Davidson, who has been leader of the RCAF Bengal Command, will head the Eastern Air Force, for close cooperation with ground forces in the coming Burma campaign. These appointments closely follow the Mediterranean set-up, as will be seen from the following comparison: Air Marshal Baldwin corresponds to Air Marshal Cunningham of the Tactical Air Force of the NAAF, Gen. Davidson to Gen. Doolittle of the Strategic Air Force; Gen. Stratemeyer to Gen. Spaatz, overall air deputy, and Air Chief Marshal Peirse to Air Chief Marshal Tedder, air commander under Gen. Eisenhower, who as commander-in-chief of the theater as a whole may be compared with Admiral Mountbatten here. If anywhere, is a pattern to emerge.

Other Units—For complete air operations, certain highly essential non-combat units were organized in the North Africa campaign. These included the Aviation Engineers to keep airfields one jump ahead of the Tactical Air Force; Photo Reconnaissance unit to supply up-to-the-minute air intelligence as to enemy positions, bombing objectives and results; Air Service unit



SPERRY IN INDIA

Paul Cullen, standing, Sperry Gyroscope Co. service engineer, HI up a shop in Bangalore, India, is repairing flight instruments on Allied planes that are sent there. Cullen reported his Indian technicians were capable and eager to learn the highly technical job of plane instrument repair.



Attack on Ploesti

August 2nd, 1943. In the early dawn of that day, 177 Liberators took off from a newly-won airfield in North Africa. Target: the oil refineries of Ploesti, Romania. Distance: round trip, 2,000 miles. Ploesti was pouring oil for its war machine. To knock it out would end a vital artery of the enemy.

Knicked out it was! Even though our bombers had to fight their way over hundreds of miles of enemy territory. Even though they had to go through murderous ground fire—coming in as low as 100 feet to make sure of each target assigned. Meticulous preparation, intense fire, defense prostrated, results

achieved, marked the attack on Ploesti as one of the epic flights of the war.

Skill in flying by instruments is a vital part of the training which makes such perilous flying missions successful. All our pilots receive instruction in the Link Trainer, which is used to teach not only instrument flying, but also navigation and bombing. This training adds weight to the air offensive, conserves fuel and planes.

Aviation looks to Link for creative engineering, for high standards of manufacture. Look for the name LINK on precision products after the war is won.

LINK AVIATION DIVISIONS, INC., Binghamton, N. Y.—Link Trainer, Aviation Sextant, Calibrators and other products contributing to the safety of flight.





CAP REUNION:

Capt. Earle L. Johnson (center), National Commander of the Coast Air Patrol, and John Dausmeyer (left), and Capt. Bob Anderson, intelligence officer at the Michigan Coast Air Patrol base, have a reunion as Detroit Dausmeyer and Anderson are both members of the Duck Club, both having made forced landings in the sea while flying coastal patrol.

to keep 'em flying; and Troop Carrier and to get 'em there first with the rest. As our operations are stepped up in the Indo-China area these additional units may be expected to come into the picture.

According to the original dispatches from New Delhi, with no exception organizations as the India-China Wing of the Air Transport Command and units of the Air Service Command were not included in the initial set-up of the Eastern Air Command.

—NARAYAN

Allies Reassign Top Air Commanders

Tedder, Spaatz, Doolittle, and Eaker given new duties for continuing aviation.

Military appointments on the air war fronts last week were headed by that of Air Marshal Sir Arthur Tedder, who will keep General Dwight Eisenhower's air force together with command of all Allied air powers operating from Britain.

Gen. Carl Spaatz was charged with all USAF strategic bombing of the Continent. Gen. James Doolittle, brother of Japan and head of strategic air forces in the Mediterranean, was moved to command of USAAF operating from Britain, taking charge of the main-channel air attack.

Aid to Russia

United States lend-lease shipments of airplanes to Soviet Russia totalled nearly 7,000 up to Oct. 31, 1943, according to a report by Leo T. Crowley, Foreign Economic Administrator. This is more than has been sent under lend-lease to any other country.

Crowley said the stepped-up flow of aid is indicated by the fact that the first ten months of 1943 shipments were 60 percent higher than in the entire year 1942.

Total lend-lease shipments to Russia through the end of October amounted to \$1,044,406,000, of which \$175,000 was military aircraft, \$464,716,800 industrial equipment and \$564,500,000 foodstuffs and agricultural products.

to be captured, because of the mild weather, and because of shorter range to areas still held in Germany and Nazi-occupied regions in the east.

Training Command. — Major Gen. Nathan Twining, commander of Allied Air Forces in the Southwest and of the 13th USA Air Force, South Pacific, all under General MacArthur, moves to command of the newly organized 12th USA Air Force in the Mediterranean. His replacement is General Eaker.

Major Gen. Jacob L. Devers, commander of all American Army Forces in the European theater, headquarters in England, now heads all U. S. Army Forces in the Mediterranean. He reports to Gen. Sir H. M. Wilson, new Allied Commander-in-Chief in that theater. Gen. Eaker returns to Devers.

At Brookwood, the successor to command of the 13th USA Air Force in the South Pacific had not been named.

Cessna Converting To Parts Output

Company's 1943 financial summaries will show a profit of \$2,388,434.

Dwane L. Wallace, president of Cessna Aircraft Co., has disclosed that his company is converting its production facilities to manufacture of component parts for tactical bombers.

This action is particularly significant in view of Wallace's explanation that the need for twin engine training planes which Cessna has been making as well as the need for utility aircraft places a demand on the production of this type of aircraft will be completed in the near future. He said the new work would utilize fully the production facilities of his plant.

Financial Report. — Wallace's statement was made in connection with Cessna's financial report for the fiscal year ended Sept. 30, 1943, which showed a net profit of \$2,388,434 after charges, federal taxes and a reserve of \$821,268 for reconservancy. The net profit is subject to remanagement.

It is equal to \$0.31 a share on 39,939 shares of capital stock and compares with a net profit of \$738,303 or \$2.13 a share in the preceding year which was after reserve of \$1,534,463 for policy adjustments and conversion and a \$4,593,390 for a refund on U. S. government con-

AIRCRAFT PRODUCTION

Revision of Wage Rate Schedules Expected in 6 Coast Plane Plants

NWLB orders comprehensive study of work and job evaluations in factories in southern California area.

The complex Southern California aircraft wage problem is undergoing a thorough examination with subsections that there will be a revision of wage rate schedules in six companies in that area.

The National War Labor Board has instructed its West Coast Aircraft committee to undertake an over-all study, including necessary hearings and investigations of work in progress, job vacancies and job descriptions of the Southern California Aerospace Industry plan.

Wage-Labor Group. — The SCAL, set up specifically to handle wage and labor matters, includes the major companies who are also members of the Aircraft War Production Council. However, the Council organization prohibits any such activity, it being set up simply to make more airplanes quicker—a concentration on war production, excluding other matters, even though mutual interest.

The War Labor Board has voted to appoint a tripartite panel to hold hearings in Los Angeles shortly, to hear evidence presented by the United Automobile, Aircraft and Aerospace Implement Workers of America, CIO, the International Association of Machinists, AFL and the National Union, United Aircraft Workers of America, Independent, as their respective for revision of wage rate schedules.

Favor to Repetit. — The panel also will hear the reply to the unions' petition from Consolidated Vultee, Douglas, Lockheed, North American, Stratoplane and Ryan.

The panel will report to the National Board on the relation of the claims in the petitions to the wage administration program and the establishment of the general level of wages for the Southern California aerospace industry, suggested last March 20. The general wage freeze of that time has been a constant subject of discussion in the industry, and labor circles have indicated from time to time that revisions upward have been considered.

type of March 3, in the West Coast aerospace company cases by requiring an over-all study and revision of the SCAL job evaluation plan and an immediate upward revision of the rates assigned to particular labor groups.

On Dec. 11, after the Machinists petitioned for a strike vote, the UAW and the United Aircraft Workers filed a supplemental petition with the War Labor Board announcing their withdrawal from the Oct. 9 picket line and reaffirming their no-strike pledge.

Adjustments. — Proposed wage adjustments constitute a class for a general increase in wage schedules which now accompany the SCAL job classification. The petitions seek a minimum hiring-on rate of 80 cents an hour, starting at the present 60 to 75 cents. Upward revisions are sought in other classifications.

Manpower Problems Analyzed by AWPC

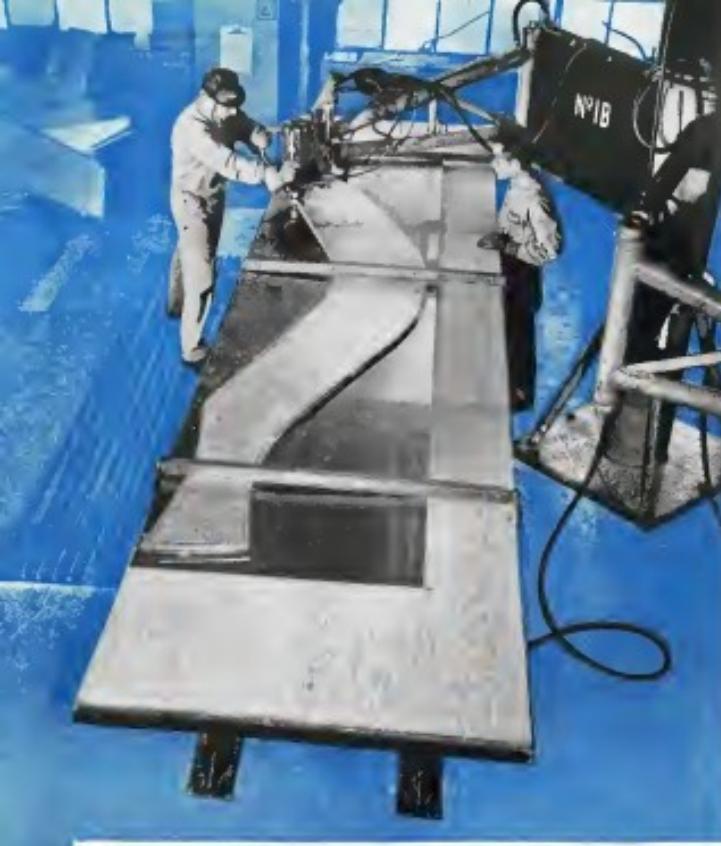
Over 45 percent of men and 29 percent of women leave jobs without working a year, reports show.

Labor turnover, which is still plaguing aircraft production, is pointed up by reports of the Aircraft War Production Council which show that of all the workers who quit their jobs in one month on the



SUPER BOMBER PLANT:

First photograph of the Bell Aircraft bomber plant near Marietta, Ga., which has been cleared for national defense. The truck in the foreground is emerging from a basement entrance. All manufacturing activities are confined to the ground floor and the two mezzanine sections. Basement contains sauerkraut, locker rooms, offices, tool cribs and rooms for temperature control and air compressing machines.



REYNOLDS

SO YOU CAN SAVE MANPOWER
REYNOLDS OFFERS A COMPLETE SERVICE ON

FABRICATED PLANE PARTS . . .

BIGGEST WORRY of war manufacturers today is the problem of getting enough good help. In the aircraft industry this situation is particularly acute. It would be worse, except for the fact that Reynolds is saving thousands of man-hours of airplane labor by supplying completely finished parts to every building manufacturer of flying planes.

Simple and obvious as this service seems today, it has been available for only three years. Reynolds pioneered it . . . built the organization needed to deliver it . . . was the first aluminum manufacturer to supply finished plane parts from aluminum sheet.

Every production man knows that the savings are substantial. Besides conserving scarce manpower and valuable floor space at the airplane plant, the Reynolds plan does away with needless handling and cross-handling of scrap, averaging 30% of every sheet. And this scrap gets back into useful aluminum in three days instead of three months!

The Reynolds organization, now operating 60 plants in 14 states, has been built by the kind of progressive, co-operative thinking and planning, Reynolds men are continually searching for new ways to make aluminum better, and make it easier and cheaper to use. If you have a problem of any

kind in working with aluminum, you will find Reynolds has the resources, equipment, and engineering skill to help you solve it in the most practical way. Reynolds Metals Company, Louisville, Ky.



ALUMINUM SHEET of every type is available now at Reynolds, ready for quick fabrication into finished plane parts of any size and type. Save your own manpower and floor space for the final and job of quick assembly.

THE GREAT NEW SOURCE OF
ALUMINUM

DROPOFF • SHEET • EXTRUSIONS • WIRE • ROD • BAR • FORGINGS • TURNING • FOIL • POWDER

West Coast, 3.85 percent of the women and 3.66 percent of the men work 15 days or less.

In addition, 6.18 percent of the women and 6.88 percent of the men turned in their badges without working 30 days. At the end of three months, 4.99 percent of the women and 5.45 percent of the men had left their jobs. Other statistics show 43.81 percent of the women and 38.46 percent of the men left their jobs without working a full year.

► **Summary.**—After one year at the plant, women account approximately 58 percent of the total number hired for that year. Went away from production lines, and surveys indicate that they did not go to other aircraft plants in any appreciable numbers.

Of all the new hires, the Council reported, less than 1 percent ever had previous airplane building experience, proving pretty conclusively that the workers just don't shift from one aircraft plant to another and back again.

► **Loss 15,000 a Month.**—Council

concern remains in a classroom constantly teaching new people how to do jobs that have to be filled here and again.

Convair 1943 Output Over 126,000,000 lbs.

Nearly 25% since 1942 production, Chairman Tom Girdler reports.

Consolidated Vultee Aircraft Corp. produced well over 120 million pounds of airplanes in 1943, Tom M. Girdler, chairman, has reported, nearly two and one half times the 1942 output of 38 million pounds of airplanes.

Girdler, in a statement in the current issue of *Mileau Talk*, company magazine, points out that the number of planes the company is building cannot be disclosed, but that the comparison of the weight of production is significant of the tremendous increase made during the last year.

► **Employees Output Spots.**—"In our San Diego plant, in the first month of the year, the average employee produced 24 pounds of airplane," Girdler said. "By October of 1943, he was producing 155 pounds per month. His efficiency had been multiplied over many times."

Girdler said that, compared with national averages for heavy bomber output, production figures for

Consolidated Vultee were even more striking. He cited the practice of the War Production Board which encourages guarantees for all aircraft plants in terms of pounds of planes produced per man per day.

► **National Average.**—It reported a national daily average of 4.6 pounds of planes per man, for the three months ending October, in all plants producing heavy bombers. The figure for Consolidated Vultee's San Diego plant, Girdler said, was almost twice as high, since the WPB report put it at 10.6 pounds.

The rate in the Vultee manufacturing plant in San Diego to produce Liberators have decreased noticeably," Girdler said. "We are now producing 14 Liberators for the same direct labor that built only one three years ago."

► **Pearl Harbor Figures.**—Girdler

pointed out that some people still

believe that America's aircraft industry was a backward institution up until the time of Pearl Harbor.

"Nothing could be further from the truth," Girdler said and cited the fact that Consolidated already had in production two planes which were to prove among the mainstays of the air forces.

Girdler said more than 180,000 men and women are now working in the 12 divisions of Consolidated Vultee.

Plant in Production On Huge Army Glider

Northwestern Aeronautical Corp. output expected to reach peak in 1946.

Northwestern Aeronautical Corp., which recently tested the largest Woodie glider ever built for the Army Air Forces, now has three planes in full production at its Twin Cities plant, and John Parker, president and owner, said output would peak in 1946.

The new craft, described as a tactical transport, is an elaboration of the basic plane in the construction of the troop transport glider successfully used in the Mediterranean theater.

► **Long-Range Operations.**—As a result of the experience acquired through war operations, the glider production program for the future calls for aircraft designed and built for long-range operations rather than for those abandoned after one flight. In line with this program, the new gliders are equipped with a landing wheel assembly as well as skids.

Originally, the smaller-type glid-

ers were equipped with wheels which were dropped off after the takeoff, and landings were made in a small space by using skids. The wheels, however, provide protection for the craft and keep it in condition for further use.

Gabriel Co. Buys Int'l Metal Hose

Gabriel Co., Cleveland, manufacturers of shock absorbers and hydraulic equipment, has purchased all machinery, equipment, inventory, patents and good will of International Metal Hose Co., manufacturer of flexible metal linings and gunline hose couplings.

William H. Miller will continue as general manager of the new company, John H. Briggs, president of Gabriel, succeeded. New executive vice-president of Gabriel is L. W. Klein, vice-president and sales manager for many years.

War Dept. Names 2 To Adjustment Board

Two new appointments to the War Dept. Price Adjustment Board are Lt. Col. Gladwin B. Cox and Lt. Col. William C. Harrington. Col. Cox is chief of the renegotiation branch, renegotiation division, Army Service Forces, as well as assistant to the chairman of the board. He is a former vice-president of the Commercial Investment Trust of New York.

► **Insurance.**—Col. Harrington, who in civilian life is part owner of Spefford, Harrington & Thomas, a general insurance and mortgage banking firm of Atlanta, Ga., is field operations chief of the renegotiation division.

Other members of the War Dept. Price Adjustment Board are Joseph M. Dodge of Detroit, chairman; Maurice Blinch of Houston, vice-chairman; and Carmen G. Blough of Chicago, who represents the War Production Board.

Boeing 1943 Record Above Expectations

December best month in four years, Johnson reports.

Quantity production beyond the greatest hopes of two years ago was achieved by Boeing Aircraft Co. in 1943 in the output of Flying Fortresses.

► **Master Bomber Problem.**—From May to September, during the height of the manpower problem, Johnson said it was possible only to maintain the production level and that it could



LIBERATOR BALL TURRETS:

Herr's line of turrets which will find their way into the bellies of Consolidated's Liberator bombers. These workers are readying them for installation and mounting of the .50 caliber machine guns.

recess, P. G. Johnson, Boeing production, reports in a review of the year-Johnson lists as highlights:

► **L December production was the highest in the firm's history for a single month, or 25 percent higher than output in January, 1943, and ten times the production during the month preceding Pearl Harbor.**

► **Flying Fortresses are being built today in approximately one-third the man hours required at the war's outbreak and in only 16 percent of the man hours required to build the first bomber of the firm's initial production contract in previous days.**

► **Notwithstanding a 27 percent increase in labor rates since Pearl Harbor and the incorporation of living expenses into the pay scale, Flying Fortresses are being delivered to the government today for approximately one-half of the contract price set that time.**

► **Boeing early this year voluntarily advised the government that as one contract, the established contract price would be reduced by \$120,000,000.**

Johnson said the Army's schedule called for delivery of more Fortresses each month over the preceding months and added that for a full year, with no increase in manpower, Boeing had met each month's schedule by constantly introducing new production methods and increasing plant efficiency.

► **Master Bomber Problem.**—From May to September, during the height of the manpower problem, Johnson said it was possible only to maintain the production level and that it could

not be increased further without additional manpower.

The mission ended in September, when Boeing's wage rate was revised upward and additional manpower was also obtained through the opening of Boeing's branch plant. With the added manpower these developmental strength, and through later utilization plans, the output was accelerated during the last three months of the year and the Army's schedule was overtaken.

► **More Workers Needed.**—Johnson noted that, while employment conditions have improved, they have not changed sufficiently to insure meeting the Army's increased demands in 1944 and therefore additional men must be brought in to meet normal requirements in the Seattle plants and to provide for requirements at Renton.

The Renton requirements, he pointed out, will be especially pressing, because full quantity production will be reached there this year on the Boeing B-29 bomber.

Huge Chrysler Plant Ready for Production

Army has permitted disclosure of the new Chrysler aircraft engine plant of the Dodge Division of Chrysler Corp., the nation's largest war plant, is now ready for full-scale production. It has nineteen buildings.

► **Bigger Than Willow Run.**—The giant plant dwarfs other aircraft



GOODYEAR DEVELOPS ICE-GRIP TIRE:

Clem J. Shurley, Tire Design Research Department of Goodyear Tire and Rubber Co., has been awarded the Citation of Industrial Productivity Merit by the WPD for development of an ice-grip tire for military planes engaged in arctic operations. The tires have small springs embedded in them in such a fashion as to cause the points of metal to protrude slightly, steadily wearng down as the tread wears.



skill counts

Much of the work at Mercury is the making of assemblies on which others have failed . . . because Mercury's means of aircraft manufacture has developed the technical skill which can come only from long experience.

speed, too

Speed in tooling, in manufacture and in maintaining strict delivery schedules is not just a matter of machines and man-hours. Here too, skill counts . . . efficient methods, effective supervision and production which meets every requirement, come only from skill based on experience.

aluminum tool and mill
tool designs, dies,
cavards and similar con-
tacts a aircraft parts and
accessories.

The Cradle of Aviation



facilities as evidenced by the fact that Willow Run could be set down in the main building with enough room left to lay out 30 baseball diamonds. The main building, the main assembly plant, today contains 22 acres and has 2,900,000 square feet of floor space.

The plant has not been idle, awaiting completion, for machine shops have been turning out parts for Wright's 2,056 hp. engine for some time.

• **Employs 35,000**—Even the energy of airplane engines on testing blocks does not go to waste. The proper shafts are connected to generators that will produce current capable of operating half the plant, according to engineering officials. It employs more than 25,000 persons on full-scale production.

Auto Plants Make 41% Plane Materials

Output rises from pre-Pearl Harbor rate of 400 million to 43 billion annually.

Production of aircraft material accounts for 41 percent of total war output of the automotive industry.

In the two years since Pearl Harbor, the Automotive Council for War Production reports, the industry's output of bombers and fighters has constantly increased and, measured in dollar volume, rose from \$460,000,000 pre-Pearl Harbor annual production rate to \$4,300,000,000, in December, 1943.

• **Reduces Errors**—Scrap has been cut but eliminated, he said, by the fact that in-built precision of the shavers reduces the possibility of burrs, grinding errors. Turner rated the machine saving as equally significant to production as fewer

On the date of our interview into the war, military vehicles were 23 percent of the automotive industry's output of war supply. The figure has nearly tripled, yet such vehicles now constitute only 23 percent of the stream of war weapons. In the same two-year period, aircraft production has risen in the automotive industry from 33 percent of factory output to 41 percent.

Gear Shavers Speed Wright Motor Output

Saves 40,000 man-hours per year, Studebaker parts plant manager reports.

A saving of 40,000 man-hours a year in the production of Wright Cyclone engines for Flying Fortresses has been announced by Studebaker Corp. from an application of shaving machine to a 18-tooth pinion gear which is carried in sets of 36 on each engine.

George W. Turner, general manager of the Studebaker aircraft engine parts plant, and a single worker on gear shavers can produce as many as 1,000 gears in 10 hours, instead of the conventional machine gear-shaving method used on aircraft engine gear sets.

• **Reduces Errors**—Scrap has been cut but eliminated, he said, by the fact that in-built precision of the shavers reduces the possibility of burrs, grinding errors. Turner rated the machine saving as equally significant to production as fewer

man hours. Four pinion gear shavers have replaced 23 generator-type grinders.

"As the war-converged automotive industry has learned," Turner explained, "gear grinding machines have experienced an equipment bottleneck. With the present grinders, we are forced at present to replace the grinding wheel after every piece. This obviously added to production delays and costs."

• **Saving on Tools**—The high speed steel cutting tool used in the shaving machines is good for 5,000 pieces. Each tool will take four re-grinds. A run of 15,000 pieces is thus possible before replacement of the tool.

Because of metal distortion and varied design, Turner does not foresee an immediate spread of shaving to all aircraft engine parts, at least, not to the extent that the practice is followed in automobile engines. He added, however, that experiments are continuing.

Brech Sees 1944 As Big Air Year

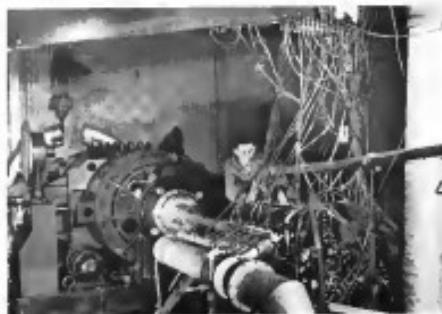
Brech predicts big war role and conversion programs; 1945 goes to 1946.

Ernest E. Brech, president of Bendix Aviation Corp., sees the American aviation industry playing a feature role in the two big dramas of 1944—first, the war itself with bigger, better and more efficient planes rolling out of aircraft plants, and second, conversion from all-out war production, in which he does not believe the aviation industry will be able to participate.

While Brech believes that aircraft plants will figure in actual conversion developments this year, he does feel that his industry, No. 1 in the country in terms of dollar volume and manpower employed, will be in the foreground of all thinking and policy-making concerning renegotiation and termination of war contracts, disposal of inventories of raw materials, allocation of materials for civilian manufacturing and similar problems of vital concern to re-establishment of a healthy post-war economy in this country.

• **Production Gains**—Brech puts the 1943 production of American industry at \$15,000,000,000 worth of planes representing a 48 per cent increase in tonnage over 1942 and believes that pace will be equaled in 1944.

"What ranks a giant industry does



IN-LINE ENGINE TESTER:

It takes Wright Field's power plant laboratory workers three days to mount a big in-line engine on a superstructure testing stand. In center is shaft leading from engine to dynamometer, with the rates of pressure and temperature being asserted at right. Each line gauges oil pressure, maximum pressure, supercharger, temperatures of cylinders, head, base, and oil fuel

in wartime and what happens to it when peace returns is of tremendous significance to millions of Americans," Brech said in a year-end review. "When peak production is attained, approximately 1,768,000 workers will be employed by the aircraft industry itself and another 1,000,000 by aircraft subcontractors and suppliers."

• **Post-War Employment**—The Bendix president and the aviation industry has no thought of being able to maintain employment at anything approximating wartime levels, but that it recognizes its responsibilities in this connection.

The United States, he pointed out, will continue to need an air force

second to none in numbers and in

continually improved efficiency and

at the same time the nation will

want to develop its bright prospects in the field of post-war commercial transportation by air.

• **Air Transport**—To do this, the country must have a plan, placing maximum emphasis on carriers on research and development at least on a competitive basis with other nations," he said. "The aviation industry can discharge these responsibilities successfully only if war and fair policies are adopted governing the renegotiation of its peace war contracts, the termination of these contracts, and the conditions of its conversion after hostilities have ended."

Brech contends that the industry did not have time before the war began, nor has it been permitted during the past two years, to accumulate adequate reserves of capital to go ahead, entirely on its own, on account of the war忙ue. He says the "million who have already shown no brilliant engineering and production skill give the United States supremacy in the war in the air."



BOMBSIGHTS PHOTOGRAPHED:

Few pictures of bombsights have been cleared for publication. This photo indicates how mass production techniques have been introduced into manufacture of these precision instruments by AC Spark Plug division of General Motors. This is a section of one of the assembly lines.

FINANCIAL

War's End Finds Railroads In Strong Competitive Position

Railroads unlikely to be operating any air services in immediate post-war period but will be able to cut own rates and improve services.

By RODGER WILCOX

The railroads are popularly supposed to be on the defensive and prepared as drafting the postwar era when the airlines will move in and garner all the choice traffic—both passenger and freight. Actually, nothing could be further from the truth.

Well known by now are the determined efforts being made by the railroads to be permitted to enter the air transport field. While a few railroads have, through affiliates, filed for air route certificates, the more important needs have not. Their main interest is to have the unquesioned right to engage in air services if such a course proves desirable or profitable.

Big Tape—Yet, assuming that legislative efforts succeed, the permit for railroad entry into the air lines, it would take considerably time—measured in terms of years—before the administrative processes of the CAB or any other designated agency could possibly grapple to issue an air route certificate to a steam carrier. Existing certificated airfares are leading the way to new routes, arduous and painfully slow. Certainly, the surface carriers will hardly find the courage any sooner or more rapid, especially being the focal point of a heated legislative controversy.

On this broad premise and produced an indicated CAB policy, it is highly unlikely that the railroads would be operating any air services in the immediate postwar period.

Roads Improve Position—The railroads will, however, make their influence felt in their own field, seeing war restraints are removed. And it is this factor which promises to represent a formidable obstacle in the plans of the air carriers to broaden their markets.

Air transportation has received the plaudits in the rotogravure sections, but the railroads have probably deserved the greatest tangible

benefit from war-inspired activity. Projections indicate that the steam carriers will emerge from the war with a reduction of about \$3,000,000,000 in debt. As a result, the railroads will be able to service their capital structures, even if traffic and earnings decline to the lowest levels prevailing during the depression period. This condition will give the railroads a potent competitive weapon in contesting with other transportation media.

Fast Cars Possible—In other words, passenger and freight loads can be cut sharply and all types of additional improvements can prove.

Under favorable circumstances, railroads can very well be in a position if not actually contended. For example, unless speed is all-important, very few passengers will be inclined to pay 5 cents per mile to travel by rail when they can make the same journey in comfortable rail equipment at 3 or 2 cents a mile.

It is a startling fact that the railines will show no appreciable improvement in the planes to be in service immediately after the war over those used prior to hostilities. Not so the railroads. Speaking of technological progress and improvements, it is the steam carriers who can show material results—now and next on the drawing boards. Light-weight passenger cars, faster speeds and lower operating costs are accomplished facts. The railroads, on the contrary, prefer and permit lower fares. The Pullman Company, at the outset of the war, met with tremendous success in the installation of a new type train-diner-car. This and other innovations in rail equipment promises to keep considerable passenger travel on the ground.

New UAL Preferred Conversion Price \$30

Rate set following authorization of 200,000 stock units.

United Air Lines directors, following a meeting at which stockholders approved a \$10,000,000 financing plan, established a \$30 a share as the price for United's common stock at which new preferred stock is to be convertible until Jan. 1, 1955.

The stockholders authorized 200,

000 shares of 4½ percent annual, non-prefeered stock. The financing plan anticipates postwar development and expansion. In addition to authorizing 100,000 shares of 4½ percent \$100 per cumulative preferred stock, the plan authorizes a change in name from United Air Lines Transport Corp. to United Air Lines, Inc., increase in authorized common stock from 3,000,000 to 3,100,000 shares and an increase in its par value from \$5 to \$10 a share, and authorizations of 198,000 shares of management stock. Company expects to issue immediately 106,032 shares of the 200,000 preferred.

Thirty-three investment firms, headed by Eberle, Rapley & Co., have been named to underwrite the plan.

Canadian Output Up

All Canada's combat type aircraft are in production on a steadily rising curve. The Canadian War-time Information Board indicates that from now on increasing numbers of first-line modern planes will be delivered each month to the fighting fronts.

Canada's largest four-engine bombers, Mosquito twin-engine bombers, Catalina flying boats and Canuck fighters as well as the Noorduyn Norseman transport, Fairey Fulmar, North American Harvard, Canadian Avro and Bristol Blenheim single and twin-engine trainers.

Convair Workers Get Management Courses

Training offered at U. of Arizona two nights a week.

Employees of the Tucson division of Consolidated Vultee Corp. may enroll in a course in Industrial Management which will be offered at the University of Arizona two nights a week, starting this week. This opportunity has been made possible through the Engineering Sciences and Management War Training program, which has made similar arrangements for war workers in other universities.

The course, which will require 16 weeks for completion, includes types and functions of machine tools, job description and methods, motion analysis, accounting and job standards, wage functions and wage setting, rate management and other auxiliary functions. It will be offered to Convair workers without charge.

PERSONNEL

A new organization, Airlines Clearing House, Inc., designed to expedite passenger revenue accounting in the United States and Canada, will be headed up by E. J. Wheary of St. Paul, vice-president and treasurer of Northwest Airlines. Wheary will be

joined in the new office by W. A. Hirschfeld, who has been with Northwest since it was formed in 1945, following his graduation from the University of Washington in 1938. Hirschfeld started his work with Boeing Aircraft Co. at Seattle in that year, and worked his way up through successive positions to become production project supervisor and assistant production manager before he left Boeing in January, 1945. In July, Walter Auerbach at Denver, Colo., as manager of the business office, Wheary, Compton and Wheary retained the same position at the Vultee Field division all last July. Wheary, who has been in the staff of C. W. Freels, vice-president in charge of manufacturing, at San Diego.

The new Philadelphia and New England offices of Dow Chemical Co. just opened, will be headed by Alexander Laski, Jr., Wright, and Alfred A. Lawrence, Jr., respectively. Laski has



been with Dow's New York sales office for the past 30 years, and Lawrence, a native New Englander, has been with the company since 1946. Headling the Philadelphia office will be Frank H. Salter, 3rd, engineer-in-charge. Frank E. Schaeffer, 3rd, engineer-in-charge, will head the New England office in Boston. Other managers in the new offices will be John A. DeSantis, heavy chemicals and pharmaceuticals; George B. Makinson, plastics engineering; and Brother Davis. Still to be appointed is a man to handle magnesium sales in this office.

Daniel Dugay has been named supervisor of reservations and ticket offices in Washington by American Airlines. He succeeds R. W. Baker, now executive superintendent of reservations and ticket offices in New York.

David W. Bell, former assistant service manager, has been promoted to general manager of the Ranger Aircraft Engine division, Fairchild Engine & Airplane Corp. Bell, who holds a degree in mechanical engineering, having learned to fly in 1939, joined Ranger in 1947 as service engineer and then assistant service manager.



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American Export Airlines announced that Robert L. Ware, Jr., recently appointed manager of traffic management in North Africa, has arrived at his permanent destination. He joined the passenger flight division of American Export last year, and previously represented the company as district traffic manager in Newfoundland and in the French-Grenadine Islands.

Capt. John W. Leadell, former state director of transportation for Massachusetts and for a time executive officer of the Massachusetts Civil Air Patrol wing, is making an action in the Harvard area, according to official notice from the War Department.

Comdr. Benjamin S. Come, USN (naval aviator) has reported for duty in the Personnel Division, Bureau of Aeronautics, Washington.

Capt. Hugh H. Goedel, USN (naval aviator) has been detached from the Aviation Planning division, Deputy Chief of Naval Operations (Air).

Some personnel changes in American Airlines at Mexico have been announced by H. H. Bell, manager, and Stanley G. King has been appointed manager of cargo and director general, and an unnamed senior group traffic manager in Mexico by George C. Walker, former traffic manager in San Francisco.

Capt. J. R. Burns, Jr., is replaced by Capt. D. DeWitt. Francesco F. de Hornet, traffic manager in Mexico City, has been succeeded by Capt. J. R. Burns, Jr., as president and director of operations. He was succeeded by A. Gómez Palenzona, former traffic manager in Monterrey, who is replaced by Fernando Lopez.

New employment manager of American Export Airlines is C. G. Seelye, formerly with The State Credit Co., in charge of setting up their various offices throughout the country.

Capt. L. D. (Huey) Anderson (right), of New Orleans, who heads the security unit among Chicago and Southern Air Lines' military and flight personnel,



has been named chief pilot in charge of all flight safety. He succeeds Capt. Fred Knight, who has been promoted to the rank of supervisor of flying and director of military cargo. Captain Anderson, who will be transferred from New Orleans to Memphis, has logged more than 12,000 hours during his 25 years of flying. During this time he has been a pilot for Pan American, Air Lines, and American, as well as many last year, and previously represented the company as district traffic manager in Newfoundland and in the French-Grenadine Islands.

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TRANSPORT

All American Seeks to Extend Lines to New York, Albany, Boston

Hawthorne Airways files for North and South Carolina routes; Albany-Plattsburgh permit sought by Crazy Air Transport.

Three applications for air pickup services were filed with the Civil Aeronautics Board last week. One came from the pioneer in the field, All American Aviation, which seeks to expand its property and mail operations to New York City, Albany and Syracuse, and into the New England states.

Anticipating some carburetor malfunctions in military cargo operations in which it is now engaged, All American said it expected some aircraft and personnel to be released for commercial operations at an early date. Company says it is in position to get equipment for operation immediately over the proposed new routes, which would add 3,000 miles to its present AM 94.

► Albany-Plattsburgh Line — This third pickup application was filed by Bruce L. Craig of Jersey City, Mass., as Crazy Air Transport, want-

ing to carry mail, passengers and property in both landing and pickup operations from two bases, Albany and Plattsburgh, N. Y.

Anticipating some carburetor malfunctions in military cargo operations in which it is now engaged, All American said it expected some aircraft and personnel to be released for commercial operations at an early date. Company says it is in position to get equipment for operation immediately over the proposed new routes, which would add 3,000 miles to its present AM 94.

► Alternate Routes — The eight new routes include alternate between New York City and Hicksville, Pa.; two between New York and Syracuse; two between New York and Boston; one between New York and Albany; one between New York and Plattsburgh; and between Charlotte and Spartanburg. Doing one place for each of the six routes,



PCA OPENS NAVY TRANSITIONAL SCHOOL:

Several of the eight DC-3's in which Pennsylvania-Central Airlines is giving transitional training to Kroc Air Transport Service pilots at Roselle, Ill. Photo

was taken at Woodrow Field as the ships moved out for takeoff following exercises which opened the Kroc's new transitional school.

with two reserve planes, they propose to serve 162 towns, 184 of which have no air service.

Flying Experience—Executives of the company have many years' experience in the aviation field. Beverly E. Howard, president and treasurer, as well as being one of America's leading exponents of precision aerial acrobatics. He served as a pilot with Eastern Air Lines for four years, and for some years has operated the Hawthorne Flying Service, a precision flying contractor with the CAA War Training Service program. A brother of Mr. Howard, the Hawthorne School of Aerobatics, is a precision training contractor to the Army Air Forces.

Vice-President John A. Clegg, an ex-captain in the Army, was formerly assistant director of the Hawthorne School of Aerobatics.

These other officers are former CAA employees. Joseph J. Machtner, Jr., general manager, was superintendent of CAA war training service in the second region. He is a pilot and has been with Curtiss-Wright Sales Corp., head of aircraft equipment sales for the Texas Pacific Coal and Oil Co., and with Southern Air Transport.

11 Years in Aviation—Superintendent of operations for Hawthorne, William G. Clegg, was a former CAA assistant Aeronautics Inspector at Oklahoma City, and was one of the first members of the CAA in 1926. Former CAA maintenance supervisor in the second region is Sam R. Monkski, who will serve as superintendent of maintenance for the new company. He has been as



EARLY CABIN PLANE:

This 1926 photo has been produced by United Air Lines as a picture of what it believes was the first cabin plane in the United States. R. D. "Old" Edwards (left), now Chicago Station manager for United, expresses the opinions of the de Havilland plane, shown here on the old Checkerboard Air Field at Maywood, Ill., when he was a mailman for the Post Office Department air mail service. The covered cabin seated two passengers.

aviation 11 years, at the Curtiss-Wright airport in Grand Prairie, Tex., and is service and operations for Braniff. Charles L. Howard, who has been with the Hawthorne company since 1926, is secretary of Hawthorne Airways.

Northwest Airlines requested two new routes. A direct route sought between Bismarck, Mont., and Cheyenne, Wyo., and Portland, Ore., via Pendleton, would reduce the present route mileage between the two cities by 264 miles. Northwest also sought permission to extend a route between Milwaukee and Spokane via Great Bend, Wash., Duluth, Minn., Fargo and Minot, N. D., and Great Falls, Mont. Fargo and Spokane are already served by Northwest, but this new route would give the territory between Fargo and Great Falls its first air service on an east-west line from Minneapolis, according to Civil Aviation, president. This was predicated on Northwest's application for service between the Twin Cities and New York, being approved.

City Officials Invited—Chamber of Commerce, an 8-principal officials in towns and cities of 1,500 or over in a nine-state area will attend, from Missouri, Kansas, Iowa, Nebraska, South Dakota, Wyoming, Colorado, Oklahoma and Arkansas.

The meeting will be the second regional gathering under the department's auspices, and is a direct outgrowth of the local air service conference last November at which more than 300 persons representing 82 cities in the Kansas City area talked about trade area airline services. It became apparent then that the principal interest of virtually all the delegates, and especially those from the smaller cities, was in the future development and uses of local airports.

To Aid Local Areas—Chamber officials work to make the January conference "solar" made" to needs and interests of the local communities. Already more than 40 manufacturers have sent questions and problems they discussed.

Among topics to be considered are support uses and requirements, to be explained by representatives of light plane manufacturers, airlines and the Civil Aeronautics Administration; operation and maintenance of airports, including both small municipal airports and privately owned fields; financing of airports both from the standpoint of raising capital funds for construction and developing methods of protection of income from tourist activities; the consequences of turbine sales, service, repair and training in local airports; the relationship of airports to college aviation training, and the future of Army airports.

Eastern Air Lines filed an amendment to a previous application in which it asked to extend route 4 from Columbus, Ohio, to Detroit. The amendment seeks to include Wheeling, W. Va., among intermediate points previously requested. The point is almost exactly on the line of the proposed route, the application stated, and will increase the overall mileage by only one mile.

Midwest Meeting Set To Discuss Airports

Kansas City Chamber of Commerce schedules conference for Jan. 26-27.

A meeting to discuss airport needs and interests of local communities is set for Jan. 26 and 27 by the Aviation Department of the Kansas City Chamber of Commerce.

City Officials Invited—Chamber of Commerce, an 8-principal officials in towns and cities of 1,500 or over in a nine-state area will attend, from Missouri, Kansas, Iowa, Nebraska, South Dakota, Wyoming, Colorado, Oklahoma and Arkansas.

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Michigan Board Maps Laws on Air Control

Action eyed as move to regulate business aviation.

Michigan Board of Aeronautics, at Lansing, indicated it would make a first bid for control of intrastate aviation when it organized a subcommittee of the state Aviation Advisory Committee to draft proposed regulatory legislation.

The Board recently granted license to Great Lakes Skycars, Inc., subsidiary of Great Lakes Greyhound Bus Lines, to operate noncommercial air taxi service in the state. The license was issued on recommendation by the Michigan Public Service Commission, whose chairman said, however, that Great Lakes Skycars definitely cannot operate until the state legislature meeting this month, deems the state's authority to regulate transportation.

Sticks to Current PSC—The projected legislation on which the aviation subcommittee is working, meanwhile, would bar the Public Service Commission from passing on certificates of convenience and necessity in intrastate airways operations permits. It would be turned over to Gov. Harry F. Kelly for presentation before a special legislative session.

The subcommittee studies statements from the Aviation Committee of the Michigan State Bar and a section of the state attorney-general's staff. It is headed by Kit F. Clancy, Lansing attorney and legal counsel for trucking interests, and Meese Bell, Grand Rapids, Kent county prosecutor.

Opposition—Indicating that the group will continue to fight the legislation, the advocacy committee and legislature to control intrastate aviation is necessary because present Michigan laws have not delegated jurisdiction in that regard, and the "present underground situation" is identified to their "present" legislative action will have a definite jurisdictional body to whom they may apply."

Meanwhile, the committee, which is advisory to the Michigan Planning Commission, came out with an open letter soliciting help against the Lee bill (H. R. 3420) to revise the Civil Aeronautics Act. Signed by Bruce E. Anderson, chairman of the committee, the letter said "present and valid interests are working day and night in Washington to force through Congress legislation that would stifle the development of civil aeronautics in this country



SLIDE SPEEDS UNLOADING:

This new wooden slide has been found so popular by American Airlines as an answer to unloading problems that the company expects to install similar equipment at stations throughout its transcontinental system. The device was given a two week trial before its acceptance was announced.

for generations to come." Reference was made to the Lee bill specifically "and all other legislation of this type."

State Rights Involved—Pointing out that the pending legislation may come to the floor of the House early this year, the committee letter added that "these measures would not only further infringe upon State Rights and strike a body blow at those people directly engaged in or interested in the development of aviation, but also rob American citizens of their right to modern, low cost air transportation facilities after the war."

In an enclosure, the committee circulated its resolution requesting that Congress "halt all such legislation" and that no aviation legislation be adopted until at least six months after the war ends.

Lee Loses Status As CAB Member

Senate fails to take action on his nomination for reappointment.

By MERLIN MCKEE

With Senate action on his reappointment to the Civil Aeronautics Board still pending, and Congress away from Washington, John Lee seemed to be a member of the Board.

Some Board sources said he would become an inactive member, but

Lee said he knew of no such determination. In any event, expression of his term on that date meant that he could not participate in Board action and would not receive pay from that date until such time as the Senate approves the appointment, if it does so, as expected, and he thereafter takes the oath.

Named for 6-Year Term—Former Senator from Oklahoma, Lee has been a Board member since Feb. 3, 1943. Mr. Roosevelt sent his reappointment for a full six-year term to the Senate Dec. 2, but it was rejected in the Senate Commerce Committee when Congress adjourned to recess June 18. By midmonth the Senate passed the status quo of the Lee nomination, but other nominations at adjournment were held.

Lee's position is not without precedent. Appointees of Civil Aeronautics Board members have gone over without confirmation for several days after terms expired on at least two previous occasions. In some government posts, the incoming career on until his successor takes office, but this is not true at CAB, where terms expire on definite dates.

Opposition Unlikely—There were indications that the opposition to Lee's original appointment would not recur when he went in before the Senate for confirmation this time. Senator Moore, of Oklahoma, who opposed him last year, has



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(Books and sets in U.S. and Canada only)

with the announcement that six stations of this type installed by the Signal Corps of the Army Service Forces are in operation in the North Atlantic and Arctic areas. Short wave communications previously in operation on the far northern routes were bothered by atmospheric disturbances and magnetic storms washed out these in operation.

The six new stations link the United States with Newfoundland, Labrador, Greenland, Iceland and Great Britain. Constituting part of the AAF Army Airways Communications system, they were set up through the combined efforts of Army and civilian technical experts, some of whom flew from Africa, South America, Alaska and both coasts of the United States.

Phone Carry Equipment

Air Force and the Royal Air Force cooperated in carrying equipment, the major part of which was flown to the new sites, although some of the heavier material went by sea, along with duplicate sets of the

te station allowance had to be made in antenna installation for maximum winds of 160-mile-an-hour velocity. To facilitate handling of supplies and equipment from air fields and harbors, special roads had to be built, and in some cases clouds bursts washed out these in operation.

TCA Reported Making West Indies Survey

Expedited to open via New York and Bermuda.

By JAMES MONTAGNE

Canada-owned Trans-Canada Air Lines, already operating a service across the Atlantic, is reported to be making a series of flights to the British West Indies via Bermuda.

The route is expected to operate via TCA's street route to New York, not taking on Bermuda passengers at New York, or from Halifax over water, as Trans-Canada has no direct route south across the United States except that from Toronto to New York.

International Routes.—Under Canadian government policy, announced last summer by Prime Minister Lester B. Pearson, only TCA will operate new international routes from Canada after the war. Domestically, however, Canadian Pacific Air Lines has received application for 860 additional international flights on a route from Regina to Edmonton via Saskatoon, Prince Albert, North Battleford, Lloydminster and Yer-

burn.

The route will give a direct CPA link from Regina in the Yukon and Mackenzie River Canadian Pacific routes via Edmonton, at the southern end of both these runs into the north. The service is planned to operate twice daily in each direction and, as contemplated, will not necessitate additional planes or crews, but merely be an extension of the services from Regina to North Battleford.

Frequency selections for the new network, which the Army says assures 24-hour radiotelegraph and radiotelephony communications, were difficult. Several times frequencies had to be altered because Amis radio stations interfered with them, and the changes meant new crystals and vacuum tubes.

Two new stations have been established at three Arctic points to generate from 3 to 25 kw power. Antennas had to be set in solid rock in Greenland and Iceland. At Newfoundland, high winds hampered the erection of a 160-foot tower, and at another Arctic



SHORTLINES

► Canadian Pacific Air Lines has been awarded with 2000 new Norvegian aircraft, including 1000 Douglas DC-4s and 1000 Douglas C-53s, by the Ministers Board Committee for Air at Washington. The aircraft are manufactured at Norwegian Aircraft Ltd., Moienvik, and have been placed in service in Quebec province on various war projects. They replace four earlier single-engine utility aircraft which have been retired from service.

► Northwest Airlines planes carried 1,361,000 pounds of air express during the first eleven months of 1943, an increase of 25% over the same period in 1942, as well as record for an eleven-month period. Express pound rates were 104.75¢, compared with 103.00¢ for the 1942 period.

► United Air Lines has assigned the two DC-3s lately returned to it by the Army to its east coast route.

► In the first ten months of 1943, Canadian Pacific Air Lines carried 61,535 passengers and 1,571,368 pounds of mail, increasing respectively by 32 and 44 percent over the 1942 period. Air cargo increased 2 percent to 8,000,000 pounds. Mail revenue increased from 221,346 to 278,714,000.

► Eastern Air Lines Agency reported air express earnings of \$6,855,000 in October, 36.85% increase from that month, compared with 31,300 in October, 1942. Express charges on the cargo totalled 15 percent more. The Agency estimates 36 percent of all air express shipments originate at or are destined for off-airline offices.

► Frequency allocations. Radios intended that trans-polarity frequency assignments between the U.S. and Europe, Asia and South America, were retained, however, that early ahead of schedule, the U.S. and Soviet Union will begin to meet the need before Soviet Civil Aviation.

► Starting an American Airlines application to include the Alaska area as intermediate point in PAN American's trans-Pacific route, 1943, has been assigned for Jan. 10 in Washington.

► A contract between Pan American Airways and the U.S. Army Air Forces for the maintenance and services furnished to the U.S. Air Force in Pan Am has been approved by Congress.

► Officials of Western Air Lines said that four major airlines have been in constant touch with developments at Newark airport since they moved to La Guardia field four years ago. There are said to be indications the lines have left the Newark field again after the war. The 20th Air Force, Army Service Command project spokesman for the Port of New York Authority, meanwhile, have advised that metropolitan planners consider development of additional landing areas on both sides of the Hudson.

► The sixth annual Christmas bonus paid by Delta Air Lines totalled \$90,000 to the 388 present employees and \$1,000 was given on leave with full annual service. The sum was \$30 each for employees with the company two months or longer and proportionate amounts for others.

► Latest report by Northway is that the first 11 months of 1943 gave it a record of 4,661,961 air-mail pounds, an

increase of 1,462,865 over the 1942 period. For November, airmail pounds per day, having risen from 2,200,780,004 to 2,370,813,004. Airmail pound mileage

for the first 11 months of 1943 was more than a billion over the 1942 period, having risen from 12,200,780,004 to 13,370,813,004.

CAB ACTION

► Under a mutual agreement and present in writing to the Board in the simplest and most expeditious manner.

► **Canadian Commissioners of Florida.** The airmail hours in telegrams to the Canadian Commissioners of Florida at Washington. The aircraft are manufactured at Norwegian Aircraft Ltd., Moienvik, and have been placed in service in Quebec province on various war projects. They replace four earlier single-engine utility aircraft which have been retired from service.

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Plywood Possibilities

AREAS, NAVY AND CONGRESS were charged with failure to support the full development of plywood aircraft construction in this country in a recent address by Lawrence Ottlinger, president of United States Plywood Corporation, before a New York Stock Exchange group.

Mr. Ottlinger said that more than two years ago he returned from Europe with information regarding the now famous Mosquito all-wood warplane. When he offered the data to Army and Navy, their officials said "we will build our own planes." He contended that the Department of Agriculture's Forest Products Laboratory at Madison "has been begging the government for funds to develop engineering data on plywood planes for years.... England knew a good deal more about plywood in its technical sense than we did." Much of the plywood for the Mosquito, called the world's fastest plane, is manufactured in the U. S., Mr. Ottlinger said. Most of his charges appear to be substantiated.

"Prejudice" of the services against plywood has been a popular subject of debate for years. Congressmen of Army and Navy officials insist that they were slow in awakening to plywood, but that in the last two years they have recommended to Congress the sizable appropriations which have been made to the Madison Laboratory for extensive and successful work. It is known that in 1940 General Arnold ordered all available experimentation. In this line, the Navy never has shown significant interest.

AREAS OFFICIALS also point to "considerable achievement" in wood design by the American aircraft industry. The Beech AT-10 and the Fairchild AT-21 are both constructed almost entirely of wood; partly made of wood are the North American AT-6, the Vultee BT-13, the Fairchild PT-10, Cessna AT-17, Beech C-45, Fairchild C-61, the Howard GR Navy transport, and the Waco C-8. The glider program should be included in any wood design summary too, they say, because it adds up to considerable tonnage.

Nevertheless, the wooden program is dwindling

and action to capitalize on our studies has been almost nil.

Important research has been conducted by the laboratory in the past two years—so valuable in fact, that British government aircraft officials recently requested that a technical mission be sent to England from the laboratory to report on its research progress on aircraft plywood and plywood composites. The mission, comprising five forest products men and a representative of Civil Aeronautics Administration, has now returned from a 60-day tour. They report that U. S. plywood research is well ahead of that of Britain—the world's leading user of wooden planes. In application, however, Britain, with 40 warplanes and trainer types of varying percentages of wood, and 65 percent of its propellers of this material, is far ahead of the U. S.

So now, after liberal appropriations, we have become the world's leaders in aircraft plywood research, but outside of a few training planes of wood we aren't doing anything about it. That is the bias for current complaint.

Army and Navy air officials make no secret that they are metal-minded. They are rightfully against any disruptive changeover to wooden warplanes in the midst of a global war. But proponents of wood feel strongly that design and construction of new warplane types should be started. They are convinced that the importance of the project rates the few engineers who would be needed, and that plant facilities exist without any interference with the metal plane program.

Despite the finest research in the world, we are using less wood in aircraft today than we were using six months ago, and as requirements now are set up we shall be using even less in the future than we are today.

It is no reflection on our aircraft industry to advocate using all available aeronautical research at our command to help end the war. The commercial aircraft industry certainly will explore every possibility of wood when the war is over, but why wait until then?

ROBERT H. WEED

AVIATION NEWS • January 8, 1944

Proof . . . IN THE AIR

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in wood of Grand Rapids Industries
is building important parts for America's
Mighty Mastery of the air.

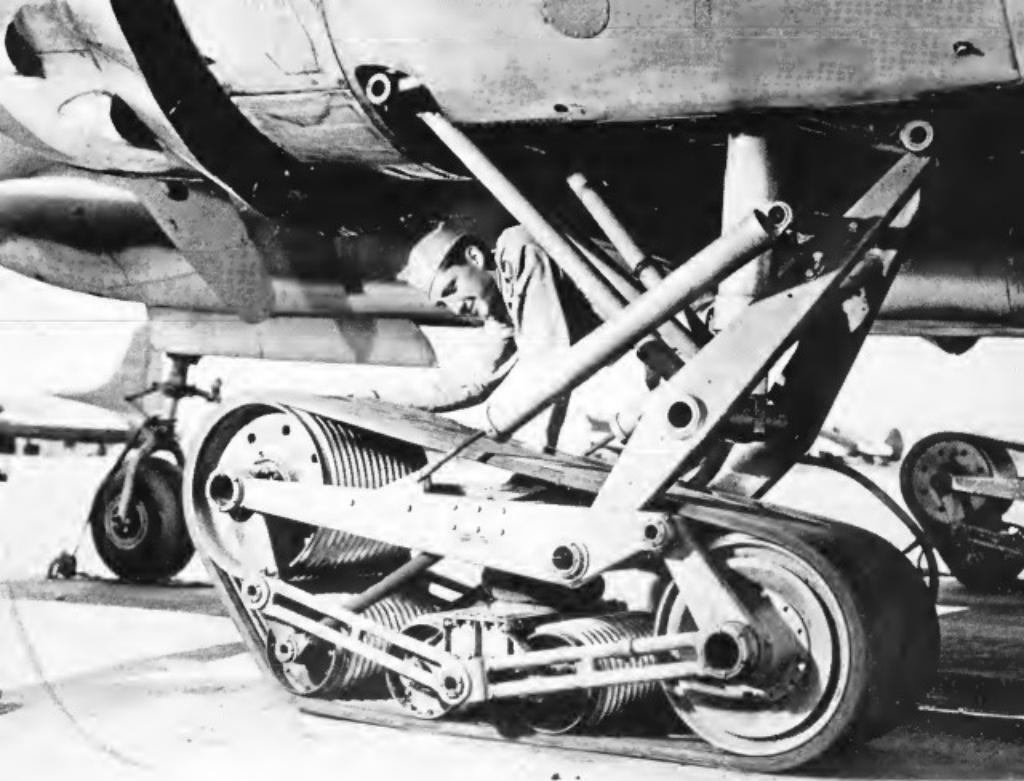
PRODUCTION for AIRCRAFT

Born with experience in building wings and other assemblies and intricate precision parts, Grand Industries Inc. offers production to meet — and as demanded for the Aircraft Industry — skilled research and advanced engineering; the facilities and resources of 10 associated plants; the output from hundreds of fast modern manufacturing machines; the volume of over 250 million feet of products; four space

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Easy does it . . .

Easy on the runways and landing strips; easy on the pilot's and crew's nerves when landing on soft ground, rough terrain or deep sand -- these are the advantages of this new type landing gear developed by The Firestone Tire and Rubber Company in cooperation with the Army Aircraft Laboratory and the Dowty Equipment Company. With the area of ground contact four to eight times that of regulation landing tires, planes equipped

with this gear have landed at 120 miles per hour!

What about bearings? The adverse operating conditions are there; heavy loads, shock and high speeds together with the necessity for the highest degree of dependability. What bearings were selected for this newest innovation in landing gear? Timken Tapered Roller Bearings, of course. The Timken Roller Bearing Company, Canton, Ohio.

TIMKEN
TRADE-MARK REG. U. S. PAT. OFF.
TAPERED ROLLER BEARINGS

